

App. No. 10/534182
Office Action dated 11/21/2006

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REMARKS

In response to the Examiner's Action mailed 21 November 2006, Applicants submit the following amendments and remarks. Claims 1, 5, and 8 are amended, claims 2-4, 6-7, and 9-10 are cancelled without prejudice or disclaimer. Claims 1, 5, and 8 are pending.

The Examiner objected to the drawings, rejected claims 1-10 under 35 U.S.C. §112, first paragraph, and rejected claims 1, 5, and 8 under 35 U.S.C. §112, second paragraph based on the "correction sample". Applicants respectfully traverse.

The specification more than adequately teaches one of ordinary skill how to make and use the correction samples, and provides a suitable description for the nature of the correction samples. The nature, role and use of the correction samples are discussed in detail, for example at page 13, line 24 to page 16, line 26 of the present specification. The specification at page 13, line 28 through page 14, line 4 clearly teaches that the correction sample is formed with only one of the fluorescent coloring matters to be found in a sample, and that different fluorescent coloring matters will be used mixed in the respective correction samples. The following discussion at pages 14-16 explains in detail how the correction sample is used in the present invention. Therefore there is adequate enablement and there is no difficulty understanding the term. The 35 USC 112 issues should be withdrawn.

With regard to the objection to the drawings, Applicants show a sample 6 in Figure 1, that can be a correction sample. A "correction sample" is also shown in steps S11 and step S14 of Figure 3. Thus, the claimed correction sample is properly shown in the drawing and the objection should be withdrawn.

The Examiner further rejected claims 5-10 under 35 U.S.C. §101 alleging the claimed invention is directed to non-statutory subject matter. Applicants traverse the rejection, if applied to amended claims 5 and 8, as not constituting a useful, concrete and tangible result. Claim 5 addresses a method for measuring a fluorescence intensity of fluorescence of each of a plurality of fluorescent coloring matters using a light source unit and a light receiving unit. Claim 8 address a computer program product comprising a program recorded in a recording medium, which causes the computer to measure a fluorescence intensity. Both claims present methods that achieve a useful, concrete and

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tangible result. Light of several wavelengths impinges on a sample that has at least one fluorescent coloring matter, then the sample fluoresces and emits light as determined by a light receiving unit. The problem arises, however, of how to determine the amount of light that was actually fluoresced from the particular coloring matter in the sample from nothing more than an electrical signal output from the light receiving unit. In claim 5, the claimed method is embodied in a tangible and concrete apparatus that has a light source, a light receiving unit, and a sample having at least one coloring matter. In claim 8, the claimed method is embodied in a computer program product which causes a computer to implement the steps of the method.

The manipulation of electrical signals output from the light receiving unit with matrix calculations, as in claims 5 and 8, is very similar to the claimed method that outputs "illumination intensity data as a predetermined function of the normalized vertical distance and elevation" held to be patentable subject matter in In re Alappat, 33 F.3d 1526 (Fed. Cir. 1994), and the claims for analyzing electrocardiograph signals, also held to be patentable subject matter in Arrhythmia Research Technology Inc. v. Corazonix Corp., 958 F.2d 1053 (Fed. Cir. 1992). The cases cited above have the force and effect of law, unlike the Guidelines for Subject Matter Eligibility, U.S. Patent and Trademark Official Gazette, 22 November 2005 cited by the Examiner which admits that the "[t]hese Guidelines do not constitute substantive rulemaking and hence do not have the force and effect of law." It is manifestly improper to impose an interpretation of guidelines in a manner that is contrary to established law. Applicants request the Examiner to withdraw the rejection of claims 5 and 8 under 35 U.S.C. §101.

Applicants have incorporated the limitations of the dependent claims into independent claims 1, 5, and 8 and therefore the rejection of claims 1, 2, 5 and 8 over Modlin is rendered moot. Applicants are not conceding the correctness of the rejection.

Applicants respectfully traverse the rejection over U.S. Patent 6,466,316B2 (Modlin '316) and U.S. Patent Application Publication 2002/0090630A1 (Hazama '630). Modlin '316 discloses a spectrograph for measuring light scattering, absorbance, and luminescence of a sample. The rejection recognizes that Modlin '316 does not teach a correction coefficient as a matrix in an apparatus for measuring the intensity of transmitted light and relies on Hazama '630 for teaching a correction coefficient as a

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matrix. Hazama '630 teaches method of determining the bases of a nucleic acid using spectrographic techniques. Applicants traverse the rejection because neither reference suggests their combination.

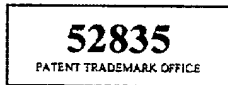
Considering Modlin '316 in more detail reveals that Modlin '316 does not suggest differentiating the output intensity from a plurality of coloring matters as required by claims 1, 5, and 8. Modlin '316 at column 10, lines 34-38 was very much aware that a sample may contain "compounds, mixtures, surfaces, solutions, emulsions, suspensions, cell cultures, fermentation cultures, cells, tissues, secretions, and/or derivatives and/or extracts thereof." Modlin '316 also knew that more than one substance within a sample could cause different effects, e.g., "color quenching" and "background noise." Modlin '316, however, teaches assaying only one compound or one reaction at a time and specifically teaches techniques to select out other compounds or other reactions. For example, to select out other compounds, Modlin '316 discloses using emission interference filters (column 8, lines 64-column 9, line 6, column 12, lines 40-54) to pass only wavelengths of interest to a specific compound, reducing background noise caused by contributions to the signal from luminescent species other than the luminescent species of interest (column 16, lines 27-52); measuring background absorbance (column 19, lines 5-13); measuring reflective absorbance (column 20, lines 15-20) to correct for the output intensity resulting from one compound or reaction. Modlin '316's technique for more than one property or more than one compound was simply to perform more than one assay, rather than to use a measure such as correction matrices in the processing. Modlin '316 was certainly aware that determination of physical and chemical properties of a sample using optical output requires sophisticated calculations, *see* equation (1) in column 2, equations (2) and (3) in column 4, equations (4), (5), and (6) in column 5, equations (7) and (8) in column 19. In other words, Modlin '316 provides no suggestion to correct for different compounds absorbing and fluorescing at different wavelengths using a correction coefficient matrix, as in claim 1, 5, and 8. In fact, Modlin '316's silence loudly tells us that there is no suggestion to use a coefficient correction matrix, as Applicants have claimed.

Hazama '630 further does not suggest that the correction matrix corrects the output values or the matrix elements based on the signal output by the light amount

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monitor, as required by claims 1, 5, and 8. For each base of a nucleic acid, Hazama '630 corrects by comparing the signal strength ratio of the peak waveform to the actual emission strength and presumes that the signal strength ratios of the emission spectra for the bases are constant, ¶[0006]. Thus, because of this presumption, any changes in the signal output caused by the variations in the light source would be the same for all four bases and would essentially be cancelled so there would be no need to measure the variations of the light source, as required by claims 1, 5, 8. Applicants request the Examiner to withdraw the rejections of claims 1, 5, and 8 under 35 U.S.C. §103.

If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicants' primary attorney-of record, Douglas P. Mueller (Reg. No. 30,300), at (612) 455.3804.



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Respectfully submitted,

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